

REMARKS

In the Office Action, the Examiner rejected claims 1-4 under 35 U.S.C. §112, paragraph 2. The Examiner also rejected these claims for obviousness type double patenting. The Examiner also rejected claims 1 and 4 under §102(e) as being anticipated by USP 6733458 issued to Steins et al (Steins). Claims 1-4 were also rejected under §102(b) as being anticipated by USP 6,167,296 issued to Shahidi (Shahidi). The Examiner rejected claims 2 and 3 under §103 as being unpatentable over Steins in further view of USP 6,725,082 issued to Sati et al (Sati). Claims 1-4 were rejected under §103 as being unpatentable over USP 6,379,302 issued to Kessman et al (Kessman).

In this Amendment, Applicant has amended claims 1, 3, and 4, and added claims 5-17. Applicant has not canceled any claim. Accordingly, claims 1-17 will be pending after entry of this Amendment.

I. Claim Objections and Rejections under §112, Second Paragraph

The Examiner objected and rejected the claims for various informalities in the claims. In this Amendment, Applicant has amended claims 1, 3 and 4 to address these informalities. Applicant request reconsideration and withdrawal of the claim objections and rejections under §112, second paragraph.

II. Provisional Double Patenting Rejection

The Examiner provisionally rejected claims 1-4 for obviousness type double patenting in view of U.S. Application 10/764,650. As this rejection is provisional, Applicant request that this rejection be held in abeyance until one of the applications is in an allowable state.

II. §§102 and 103 Rejection of Claims 1-4

As mentioned above, claims 1-4 stand rejected under §§102 and 103 in view of several references. Claims 2-4 are dependent directly or indirectly on claim 1. Claim 1 recites a method for guiding a medical instrument to a target site within a patient. The method captures at least one intraoperative ultrasonic image from the patient. The method identifies a spatial feature indication of a patient target site on the intraoperative ultrasonic image. The method determines coordinates of the patient target site spatial feature in a reference coordinate system, where the reference coordinate system is not defined in terms the ultrasonic image. The method determines a position of the instrument in the reference coordinate system. The method displays a view from the perspective of the instrument in the reference coordinate system. The method displays on the displayed view a set of indicia that identifies the position of the target site with respect to the instrument, where the set of indicia is not a geometric representation of the target.

None of the cited references disclose, teach, or even suggest such a method. For instance, none of these references alone or through piecemeal, hindsight combination disclose guiding a medical instrument to a target site within a patient by:

- capturing at least one ultrasonic image from the patient;
- identifying a spatial feature indication of a patient target site on the ultrasonic image,
- determining coordinates of the spatial feature in a reference coordinate system, which is not defined in terms the ultrasonic image,
- displaying a view from the perspective of the instrument in the reference coordinate system, and

- displaying on the displayed view a set of indicia identifying the position of the target site with respect to the instrument, where the set of indicia is not a geometric representation of the target.

Accordingly, Applicant respectfully submits that the cited references do not render claim 1 unpatentable. As claims 2-4 are dependent on claim 1, Applicant respectfully submits that these claims are patentable over the cited references for at least the same reasons. In view of the foregoing, Applicant respectfully requests reconsideration and withdrawal of the §§102 and 103 rejections of claim 1-4.

III. New Claims

In this Amendment, Applicant has added three sets of new claims, which are claims 6-10, claims 11-13, and claims 14-17.

A. Claims 6-10

Claims 7-10 are dependent directly or indirectly on claim 6. Claim 6 recites a method for facilitating a medical procedure involving navigation of a medical instrument towards a target site in a patient. The method defines a reference coordinate system. It also captures at least one intraoperative two-dimensional ultrasonic image from the patient. From the captured two-dimensional ultrasonic image, the method computes the coordinates of the target site in the reference coordinate system. The method displays a view from the perspective of the instrument, a surgeon, or another instrument. The method also displays in real time on the displayed view a set of indicia that identifies the location of the target site, in order to allow the surgeon to navigate

the medical instrument towards the patient target site. None of the cited references disclose, teach, or even suggest such a method.

B. Claims 11-13

Claims 12-13 are dependent directly or indirectly on claim 11. Claim 11 recites a method for facilitating a medical procedure involving navigation of a medical instrument towards a target site in a patient. The method captures at least one intraoperative ultrasonic image from the patient. The method receives at least one location on the ultrasonic image as the location of the target site. From the received location, the method calculates the location of the target site with respect to the orientation of the instrument. From the perspective of the instrument, the method displays a view of the patient. The method displays in real time a set of indicia that identifies the location of the target site in the displayed view, in order to facilitate the navigation of the medical instrument towards the patient target site. None of the cited references disclose, teach, or even suggest such a method.

C. Claims 14-17

Claims 15-17 are dependent directly or indirectly on claim 14. Claim 14 recites a method for facilitating a medical procedure involving navigation of a first medical instrument towards a target site in a patient. The method captures at least one intraoperative ultrasonic image from the patient. It also receives at least one location on the ultrasonic image as the location of the target site. From the received location, the method calculates the location of the target site with respect to a perspective defined with respect to a second medical instrument. The method displays a view of the patient from the perspective defined with respect to the second medical instrument.

The method also displays in real time a set of indicia that identifies the location of the target site in the displayed view, in order to facilitate the navigation of the first medical instrument towards the patient target site. None of the cited references disclose, teach, or even suggest such a method.

CONCLUSION

In view of the foregoing, it is submitted that all the claims, namely claims 1-17, are in condition for allowance. Reconsideration of the rejections and objections is requested. Allowance is earnestly solicited at the earliest possible date.

Respectfully submitted,

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